Scotch® 2200™, 2210™

Vinyl Mastic Pads and Rolls

1. Product Description

Scotch® Brand 2200 Pads and 2210 Rolls are self-fusing, rubber based insulating compounds laminated to a flexible, all-weather grade vinyl (PVC) backing. These tape rolls and pre-cut pads are designed to insulate, moisture-seal and pad all connections up to 600 volts, and have high resistance to abrasion, moisture, alkalis, acid, copper corrosion and varying weather conditions (including sunlight).

Product feature are:

- Polyvinyl chloride (PVC) backing.
- Compatible Rubber Mastic.
- Flexible over wide range of temperatures.
- Highly resistant to ultraviolet light.
- Easily installed to provide maximum protection.
- Compatible with all common solid dielectric cable insulation.
- Usable for indoor or outdoor applications.

2. Applications

For applications 600 V maximum.

- Bolted connections.
- Service drops.
- Traffic signal wire connections.
- Lighting connections.
- Transformer bushing protection.
- Padding bolted connections on bus bar.
- Grounding rod connection protection.
- Terminal protection.
- Cable end sealing.
- Secondary compression connections.

3M Deutschland GmbH
Carl-Schurz-Str.1
41453 Neuss
Germany

Reference: AABBCC28292_02

Issue date 18.08.2021

3. Typical Properties

Backing

Composition – All weather polyvinyl chloride (PVC) plastic.

Physical Properties	Typical Value
Color	Black
Thickness ASTM D1000	0,18 mm
Breaking Strength ASTM D1000	35 N/10 mm
Elongation ASTM D1000	200%.

Mastic

Composition – Highly stable synthetic elastomers and resins.

Physical Properties	Typical Value
Thickness ASTM D1000 Pad Roll	 3,0 mm 2,3 mm

Composite (Backing and Mastic)

Physical Properties	Typical Value
Thickness ASTM D1000 Pad Roll	 3,2 mm 2,3 mm
Adhesion to Steel ASTM D1000	21,9 N/10 mm width
Adhesion to Polyethylene ASTM D1000	 21,9 N/10 mm width
Dielectric Strength ASTM D1000	11,8 kV/mm (300 volts/mil)
Insulation Resistance ASTM D257	$>10^6$ MΩ
Water Absorption ASTM D570	0,75%
Water Vapor Transmission Rate ASTM-3833	0,25 gm/100 sq in/24 hours

4. User Information

4.1 Specifications

The insulation is a composite of an all-weather polyvinyl chloride (PVC) backing and a thick rubber based, pressure-sensitive adhesive. The product must be applicable at temperatures ranging from -18°C to 38°C without loss of physical or electrical properties.
The product must not degrade when exposed to various indoor or outdoor environments. It must also be compatible with all synthetic cable insulations and jointing compounds. When used in junction boxes, cable trays or gutters, connectors shall be over wrapped with at least one-half lapped layer of glass cloth tape or varnished cambric tape before applying the product. Or, the entire product build-up shall be over wrapped with two half-lapped layers of an adhesive-coated cloth tape.
Where use involves direct burial or continuous submersion in water, the product shall be over wrapped with a minimum of two half-lapped layers of plastic electrical tape.

4.2 Engineering/Architectural Specification

All splices for 600-volt wire rated at 80°C and below shall be insulated with “Scotch” Brand 2200 Pad or 2210 Roll. The Vinyl Mastic shall be protected from sharp edges and external pressure from heavy objects by at least a one-half lapped layer of Scotch® Brand 27 or 69 Glass Cloth Tape, or Scotch® 2510 Varnished Cambric Tape before applying Scotch Vinyl Mastic. Or over wrap the entire Vinyl Mastic build-up with two half-lapped layers of an adhesive-coated cloth tape.
When directly buried or submerged in water, splices shall be over wrapped with a minimum of two half-lapped layers of Scotch® Super 33+ or Super 88 Vinyl Plastic Electrical Tape.

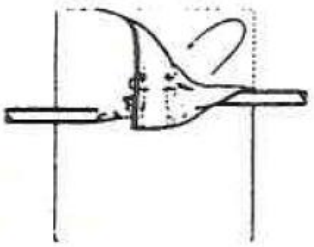
4.3 Characteristics and Test Data

Specimens are made using 35 mm² (2 AWG) stranded aluminum, cross linked polyethylene insulated 600-volt cable. The cables are connected with copper-aluminum split bolt as well as compression type connectors. Split bolts were insulated as shown under “Installation Techniques”. Compression connectors were wrapped by rolling Scotch™ 2200 or 2210 around connector and covering cable jacket on each end by 1inch.
All specimens were then current cycled to 90 °C conductor temperature, at room temperature in air for 24 hours, 2 hours on and 2 hours off. Specimen were then submerged in a 3% salt water solution and 120 volts was applied. Insulation resistance after 21 days was in excess 10^6 megaohms.

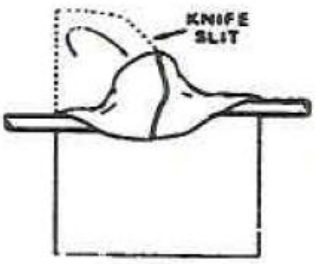
4.4 Installation Techniques

Compression inline connections shall be spiral wrapped.
For bolted inline and tap connections, 2210 Roll, cut into desired pad size, or 2200 Pad shall be installed as follows:

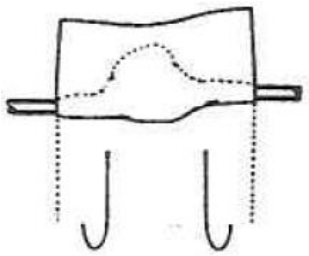
Inline Connections



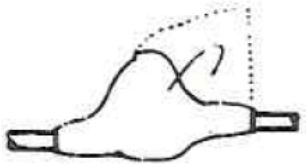
1. Wrap connector with Scotch 27 or 69 Class Cloth Tape. Position bottom of connector in center of pad. Fold corner over connector. *Stretch* pad around the cable



2. Make knife slit and fold other corner over the top of the connector. *Stretch* pad around the connector.

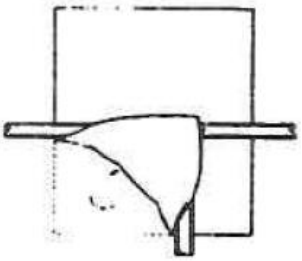


3. Fold bottom of pad up over connector.

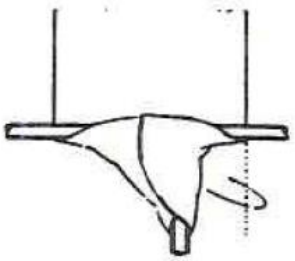


4. Fold both corners around connector. *Stretch* around cable so putty oozes from beneath vinyl backing.

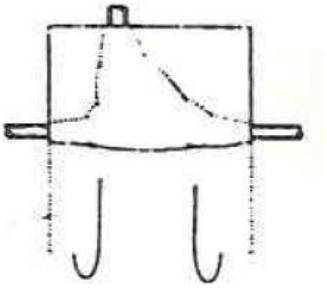
Tap Connections



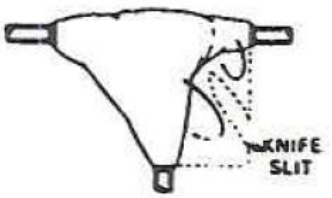
1. Wrap connector with Scotch 27 or 69 Glass Cloth Tape. Position connector in center of pad. Fold left corner of pad over connector. *Stretch* pad around cable and connector.



2. Fold other corner over connector. *Stretch* pad around cable and connector.



3. Fold top of pad over connector.



4. Make knife slit and fold both corners around connector. *Stretch* around cables so putty oozes from beneath vinyl backing.

4.5 Shelf Life

Scotch 2200 and 2210 have a 5-year shelf life (from date of manufacture) when stored under the following recommended storage conditions. Store behind present stock in a clean, dry place at a temperature of 21 °C and 40-50 % relative humidity. Good stock rotation is recommended.

4.6 Availability

Scotch 2200 is available in 165 x 115 mm (6 ½ " x 4 ½ ") pads, and 115 x 83 mm (3 ¼ " x 4 ½ ") pads from your local distributor. Scotch 2210 is available in a 102 mm x 3 m (4 " x 10 ') roll from your local distributor.

5. Additional Information

To request additional product information, see address below.

Important Notice

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluates the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application.

Values presented have been determined by standard test methods and are average values not meant to be used for specification purposes.

All questions of warranty and liability relating to 3M products are governed by the terms of the respective sale subject, where applicable, to the prevailing law.

3M is a trademark of the 3M Company.

3M Deutschland GmbH
Carl-Schurz-Str.1
41453 Neuss
Germany